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REDUCTION IN LEFT ATRIAL VOLUMES WITH CARDIAC RESYNCHRONIZATION THERAPY AND THE RISK OF ATRIAL TACHYARRHYTHMIAS IN MADIT-CRT

ACC Oral Contributions
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Background: We hypothesized that reductions in left atrial volume (LAV) with a cardiac resynchronization therapy-defibrillator (CRT-D) will translate into subsequent reduction in the risk of atrial tachyarrhytmias.

Methods: Reductions of LAV at 1-year following CRT-D implantation (pre-specified as high- [≥20%] or low- [<20%] LAV response) were related to the risk of subsequent atrial tachyarrhytmias (comprising atrial fibrillation, atrial flutter, or atrial tachycardia) among 1373 patients enrolled in MADIT-CRT.

Results: Mean LAV reductions among CRT-D and ICD-only patients were 28% ±12% vs. 10% ±7%, respectively (p<0.001). The cumulative probability of atrial tachyarrhythmias 3-years after assessment of echocardiographic response was lowest among those who showed a high LAV-response to CRT-D (n=581), and significantly higher among both low LAV-responders to CRT-D (n=170) and ICD-only patients (n=622; Figure). Congruently, multivariate analysis showed that high LAV-responders experienced a significant 57% (p=0.029) reduction in the risk of atrial tachyarrhythmias as compared with ICD-only patients, whereas the risk for the development of atrial tachyarrhytmias was not significantly different between low LAV-responders and ICD-only patients (HR=1.05; p=0.89).

Conclusions: In patients receiving CRT-D, favorable reverse atrial remodeling is associated with a significant reduction in the risk for the development of subsequent atrial tachyarrhytmias.